

# THE CAMBRIDGE STATISTICS DISCUSSION GROUP

**Tuesday 28th October 2008 7:15 for 7:45**

Large Lecture Theatre,  
MRC Cognition and Brain Sciences Unit,  
Chaucer Road, Cambridge

## **Approximate Bayesian Computation: what, why and how**

**Simon Tavare**

Dept. Applied Mathematics & Theoretical Physics

**Abstract:** Approximate Bayesian Computation (ABC) arose in response to the difficulty of simulating observations from posterior distributions determined by intractable likelihoods. The method exploits the fact that it is often easy to simulate observations from complex probability models. ABC in its simplest form proceeds as follows: (i) simulate a parameter from the prior; (ii) simulate observations from the model with this parameter; (iii) accept the parameter if the simulated observations are close enough to the observed data. The magic, and the source of potential disasters, is in step (iii). This introductory talk will outline what we know (and don't!) about ABC as well as a number of applications.

**Speaker:** Simon was an undergrad and PhD student in the Department of Probability and Statistics at the University of Sheffield, and then moved to the US in 1978. From 1989 to 2006 he was a professor in the Departments of Mathematics, Biological Sciences and Preventive Medicine at the University of Southern California. Since 2003 Simon has been a Professor in DAMTP and the Department of Oncology at the University of Cambridge, and since 2006 a Senior Group Leader in CRUK's Cambridge Research Institute. His research interests have focused on statistical problems arising in molecular biology, human genetics, population genetics, molecular evolution, bioinformatics and cancer genomics, in stochastic computation and probabilistic combinatorics.

**Annual General Meeting:** Simon's talk will be preceded by a brief Annual General Meeting.

**Directions** Chaucer Road is off Trumpington Road – if you are heading away from the city centre it is the first right after the junction with Brooklands Avenue. Number 15 is at the end on the left and is a large Victorian House with a more modern extension to its right. The entrance is in the porch located in the middle of the older section on the left as you come in and is accessed by ascending a few steps from the car park. Cars may be parked there. The outside door will be locked at 7:45.

Arrivals after 7:45pm can gain admittance by contacting the secretary on 07761769436. A map showing the location of the unit is at <http://www.mrc-cbu.cam.ac.uk/contacts/directions>.

**Provisional Next Meetings: (PLEASE NOTE CHANGE OF NOVEMBER MEETING DATE TO THAT ORIGINALLY LISTED)**

25th November – David Spiegelhalter (MRC Biostatistics & Statistical Laboratory).

3rd February – Peter Lane (GSK) on 'Meta-analysis of clinical trials, particularly of rare adverse events'.

5th March – Ben Marchant (Rothamsted Research).

2nd April – Phil Dawid (Statistical Laboratory).

**Supper:** Some members eat before a talk at the University Centre meeting in the downstairs bar at **5-45pm**. All welcome !

**Secretary:** Peter Watson, MRC Cognition and Brain Sciences Unit, 15 Chaucer Road, Cambridge CB2 7EF;

telephone 01223 355294 Extension 801; E-mail [peter.watson@mrc-cbu.cam.ac.uk](mailto:peter.watson@mrc-cbu.cam.ac.uk)

**For security purposes could you please let Peter Watson know if you intend attending the talk. Take a look at our website: <http://www.mrc-cbu.cam.ac.uk/people/peter.watson/csdg.html>**

**TURN OVER for the Annual General Meeting agenda**

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## **Annual General Meeting**

The annual general meeting will be followed immediately by Simon Tavare's talk ' Approximate Bayesian Computation: what, why and how '.

### **Agenda:**

0. Approval of Minutes of previous A.G.M.  
([http://www.mrc-cbu.cam.ac.uk/~peterw/Draft\\_Minutes\\_2006-7.doc](http://www.mrc-cbu.cam.ac.uk/~peterw/Draft_Minutes_2006-7.doc))
1. Treasurer's Report.
2. Secretary's Report.
3. Election of Chairman, Secretary, Treasurer, plus 3 other members of the Committee.
4. Any Other Business.

### **Rules for Election:**

1. FRANCISE: All paid-up members may vote or stand for office.
2. NOMINATIONS: The offices to be filled are Chairman, Secretary and Treasurer and three other members of the Committee.

An outgoing Chairman will be a member of the Committee ex officio. At the end of each year the entire Committee will stand down, but may stand again for the same office as they are leaving without nomination. To be elected to a different office a candidate must be nominated by one person from the paid-up membership, not including himself. Nominations do not require a seconder to be valid, but do require the consent of the nominee. One person can be nominated for more than one office, but hold only one. If a person is elected to a higher office (according to the ordering given below) he or she automatically ceases to be a candidate for a lower office. A candidate for the post of Chairman, Secretary, Treasurer is automatically a candidate for the Committee if he or she fails to gain election to one of these three posts.

**TURN OVER for directions to the Cognition and Brain Sciences Unit and abstract of Simon's talk**